Exhibit A

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January 11, 2023

By Email
Artie McConnell
Mark E. Misorek
Miranda Gonzalez
U.S. Attorney's Office
Eastern District of New York
271 Cadman Plaza East
Brooklyn, New York 11201

Re: Ronald Washington First Expert Notice

Dear Mr. McConnell, Mr. Misorek and Ms. Gonzalez:

We write pursuant to Federal Rule of Criminal Procedure 16(b)(1)(C) to provide notice that the defense intends to offer testimony at trial from Dr. Geoffrey Loftus.

Dr. Loftus is an experimental psychologist with expertise in human memory, visual perception, and eyewitness identification. He has researched and written on these subjects for approximately fifty years. Dr. Loftus received his B.A. in Experimental Psychology from Brown University in 1967 and his Ph.D. in Experimental Psychology from Stanford University in 1971. He has been on the faculty of the University of Washington Department of Psychology since 1972. Dr. Loftus is a member of several professional associations, including the American Psychological Society and the Association for Research in Vision and Ophthalmology. He has been qualified to testify as an expert on the subjects of memory, perception, and the reliability of eyewitness testimony more than 400 times in numerous state and federal courts. His research has been published in many books and journals, including the *Journal of Experimental Psychology*, *American Psychologist*, *Memory & Cognition*, and the *Psychonomic Bulletin & Review*. He has served as an editor or on the editorial boards of several journals— *Memory & Cognition*, *Cognitive Psychology*, the *Journal of Experimental Psychology*, *Psychological Science*, and *Psychological Review*. During his career, Dr. Loftus has received more than $3.5 million in continuous grant funding from the National Science Foundation, the National Institute of Mental Health, the University of Washington, and the Institute for Learning and Brain Science for his research on visual perception and human memory. Dr. Loftus's curriculum vitae is enclosed as Exhibit A.

The defense expects that Dr. Loftus will testify generally about the science of human perception and memory, the reliability of eyewitness identifications, and the dependability of eyewitness identification procedures. The defense anticipates that Dr. Loftus will explain how an eyewitness's memory of an incident might be affected by various factors, including the effect of environmental conditions such as attention, weapon focus, stress, and duration. We also expect him to testify, based on his review of the discovery materials listed below, that those

environmental conditions could have had an impact on identifications made in this case. We further expect him to testify about concepts related to his research in the field of human memory and perception, including the effect of pre- and post-event information. Prior testimony on these subjects by Dr. Loftus in the Cook County, Illinois case *People v. Marco Lopez* is attached for your reference as Exhibit B.

Dr. Loftus's opinions are based on his training and experience, his extensive research in this field, and on information the government has produced to the defense in this case, specifically, Bates 000001 to Bates 000405.

Dr. Loftus is also expected to testify about the potential unreliability of a photo array procedure including a set of strangers and one person familiar to the witness. His testimony on this subject will be based on fundamental findings in recognition memory research, including his own. *See, e.g.* Reinitz, M.T., Séguin, J.A., Peria, W., &. Loftus, G.R. (2012), Confidence-accuracy relations for faces and scenes: Roles of features and familiarity, *Psychonomic Bulletin & Review, 19,* 1085– 1093.

During the previous four years, Dr. Loftus has testified as an expert in the following matters:

People v. Jabulani Williams 595677 – Oakland, CA

People v. Josef Oakes SJPD 12-226-0462 – San Jose, CA

State v. Mustafa Mohamud Arteh 518031290 – Seattle, WA

People v. Gabriel Schroeder – Martinez, CA

People v. Carl Krenkowski 17CR1292601 – Chicago, IL

State v. Brent Walsh 1CPC-17-0001816 – Honolulu, HI

State v. Jordan Smith 17-350730-001 – Honolulu, HI

State v. Shane Patano 19-1-00022-31 – Everett, WA

State v. Angel Franco 188015610 – Seattle, WA

People v. Hector Cosme 18CR015728 – Oakland, CA

People v. Silas Hesselberg 19MI003026 – Sacramento, CA

People v. Tony Thao 18FE007345 – Sacramento, CA

State v. Cory Wade 18-1-00533-3 SEA – Seattle, WA

People v. Odell Jones 17-CR-005837A, B – Oakland, CA

People v. Stefawn Taylor 19FE014699 – Sacramento, CA

Shawn Williams v. State of New York 132581 – New York, New York

People v. Damien Bolden 19CR6478 – Chicago, IL

Weichel v. Commonwealth of Massachusetts – Boston, MA

People v. Roban Ludford CR1703460B – Eureka, CA

State v. Kilani Derego 1PC101001469 – Honolulu, HI

State v. Robert Harrison 20-1-00852-1 SEA – Seattle, WA

People v. Will Watson 17-CR-003246 – Oakland, CA

State v. Benjamin Woody 21-1-01209-1 – Everett, WA

U.S. v. Murray Hooper, CV-98-2164-PHX-SMM – Phoenix, AZ

State v. Jonathan Fisher 20 1 00904 31 – Everett, WA

Very truly yours,

/s/ Ezra Spilke
Susan G. Kellman
Ezra Spilke
Jacqueline E. Cistaro
Counsel for Ronald Washington

encl.

Expert Approval:

The disclosures contained in this letter are true and correct.

Geoffrey Russell Loftus, Ph.D.

Exhibit A

Geoffrey Russell Loftus

CV (Revised November 7, 2022)

Biographical Data

Born: 1945

Address: Department of Psychology, Box 351525
University of Washington
Guthrie Hall, Room 222
Seattle, WA 98195-1525
USA

Communication channels

Office phone: (206) 543-8874
Cell phone: (206) 605-1974
Skype: gloftus45
email: gloftus@uw.edu
Web site: http://faculty.washington.edu/gloftus

Education

B.A.: Brown University, Experimental Psychology, 1967

Ph.D.: Stanford University, Experimental Psychology, 1971 (Adviser: Richard C. Atkinson)

Postdoctoral: New York University, 1971-72 (Sponsor: George Sperling)

Employment

Warm-up

Honeywell Corporation: computer programmer (machine-code and assembly-language), summers, 1966, 1967

Stanford University, Department of Psychology: research assistant/teaching assistant, 1967-1971

New York University: postdoctoral research fellow, 1971-72

Permanent

University of Washington: assistant, associate, full, emeritus professor, 1972-present

Visiting

Stanford University, Department of Psychology: visiting professor, summers, 1972, 1979

National Institutes of Health: National Institute on Aging: visiting scholar, autumn, 1986

MIT, Department of Brain and Cognitive Sciences: 1995-1996

Awards and Honors

Fellowships

University Fellow, Stanford University: 1967-70

NSF fellowship, New York University: 1971-72

Visiting Scholar, Stanford University: autumn, 1978, summers,1979, 1980

NIMH MERIT Award 1989-1999

Research Grants

National Science Foundation	$31,000	6/73-5/75	Eye fixations
National Science Foundation	$43,500	6/75-12/77	Short-term memory
National Science Foundation	$37,660	1/78-5/79	Picture memory

National Science Foundation	$101,03	6/79-9/82	Picture memory
UW Grad School Research Fund	$4,962	10/79-6/80	Picture memory
National Science Foundation	$167,362	10/82-5/86	Visual perception
NIMH	$202,096	6/86-5/89	Visual perception
UW Royalty Research Fund	$24,000	3/96-2/97	Attention
NIMH	$1,082,187	6/89-8/99	Visual perception (MERIT award)
NIMH	$650,570	9/99-2/05	Visual perception
Institute for Learning and Brain Science	$75,202	3/01-6/02	Developmental perception
NIMH	$1,227,220	3/05-2/11	Visual perception (.pdf)
UW Royalty Research Fund	$35,000	3/13-2/14	Visual perception

Professional Memberships

American Association for the Advancement of Science (Fellow)

American Psychological Society (Fellow)

Association for Research in Vision and Ophthalmology

Psychonomic Society (Publications Board 1997-2001)

Society for Computers in Psychology (President 1983-84)

Society of Experimental Psychologists

Other Professional Experience

Grant reviewing

NIMH Basic Behavioral Processes Study Section (1983-1987)

NIMH Cognition and Perception Study Section (2003-2007)

Ad hoc reviewer for numerous other granting agencies in the U.S. and elsewhere

Journal editorships

Editor: *Memory & Cognition* (1993-1997)

Associate Editor, *Cognitive Psychology* (1975-1996; 1999-2006)

Journal editorial boards:

JEP: Learning, Memory, and Cognition (1977-1988; 2000-2002)

JEP: General (1977-1990)

Psychological Science (1999-2004)

Psychological Review (2004-2011)

Consulting work

Permitted to testify as an expert witness on perception, memory, statistics, and video-game behavior in approximately 490 civil and criminal cases (1980-present). Testimony admitted in,

Superior Courts: 64 counties in Alaska, Arizona, California, Colorado, Illinois, Indiana, Hawaii, Massachusetts, Michigan, Montana, Nevada, New Jersey, New York, Oregon, Washington, Wyoming

Federal Courts: Anchorage, AK; Chicago, IL; El Paso, TX; Kansas City, MO; Newark, NJ; Philadelphia, PA; Sacramento, CA; San Francisco, CA; Tacoma WA; Tucson, AZ; Yakima, WA

U.S. Military Court: U.S. Navy, Sigonella, Italy

Canada: Winnipeg, Manitoba

Publications

Books

Loftus, G.R., & Loftus, E.F. (1976). *Human Memory: The Processing of Information.* Hillsdale, NJ: Lawrence Erlbaum Associates.

Loftus, G.R., & Loftus E.F. (1982). *Essence of Statistics.* Monterey: Brooks-Cole.

Loftus, G.R., & Loftus, E.F. (1983). *Mind at Play: The Psychology of Video Games.* New York: Basic Books.

Loftus, G.R., & Loftus, E.F. (1987). *Essence of Statistics, 2nd Edition.* New York: Random House.

Savageau, D. & Loftus, G.R. (1997). *Places Rated Almanac*. New York: McMillan.

Smith, E.E., Nolen-Hoeksema, S., Fredrickson, B., & Loftus, G.R. (2003). *Hilgard's Introduction to Psychology, Fourteenth Edition*. Belmont, CA: Wadsworth.

Nolen-Hoeksema, S., Fredrickson, B., Loftus, G.R., & Wagenaar, W. (2009). *Hilgard's Introduction to Psychology, Fifteenth Edition*. London, UK: Cengage.

Nolen-Hoeksema, S., Fredrickson, B., Loftus, G.R., & Lutz, C.I., (2013). *Hilgard's Introduction to Psychology, Sixteenth Edition*. Andover, UK: Cengage.

Articles and Chapters

Freund, R.D., Loftus, G.R., & Atkinson, R.C. (1969). Applications of multiprocess models for memory to continuous recognition tasks. *Journal of Mathematical Psychology, 6*, 576-594. (pdf)

Klatzky, R.L., & Loftus, G.R. (1969). Recognition memory as influenced by number of reinforcements and type of test. *Psychonomic Science, 16*, 302-303. (pdf)

Loftus, G.R., & Wickens, T.D. (1970). Effect of incentive on storage and retrieval processes. *Journal of Experimental Psychology, 85*, 141-147. (pdf)

Rundus, D.J., Loftus, G.R, & Atkinson, R.C. (1970). Immediate free recall and three-week delayed recognition. *Journal of Verbal Learning and Verbal Behavior, 9*, 684-688. (pdf)

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Loftus, G.R. (1971). Comparison of recognition and recall in a continuous memory task. *Journal of Experimental Psychology, 91*, 220-226. (pdf)

Loftus, G.R. (1972). Eye fixations and recognition memory for pictures. *Cognitive Psychology, 3*, 525-551. (pdf)

Loftus, G.R. (1973). Man as an information processor. Textbook chapter in M.S. Gazzaniga, *Fundamentals of Psychology,* New York: Academic Press.

Loftus, E.F., & Loftus, G.R. (1974). Changes in memory structure and retrieval over the course of instruction. *Journal of Educational Psychology, 66*, 315-318. (pdf)

Loftus G.R. (1974). Acquisition of information from rapidly presented verbal and nonverbal stimuli. *Memory and Cognition, 2*, 545-548. (pdf)

Loftus, G.R. & Loftus, E.F. (1974). The influence of one memory retrieval on a subsequent retrieval. *Memory and Cognition, 2*, 467-471. (pdf)

Loftus, G.R., & Bell, S.M. (1975). Two types of information in picture memory. *Journal of Experimental Psychology: Human Learning and Memory, 104*, 103-113. (pdf)

Loftus, G.R., Mathews, P., Bell, S.M., & Poltrock, S. (1975). General software of an on-line eye-movement recording system. *Behavior Research Methods and Instrumentation, 7*, 201-204. (pdf)

Loftus, G.R., & Patterson, K.K. (1975). Components of short-term proactive interference. *Journal of Verbal Learning and Verbal Behavior, 14*, 105-121. (pdf)

Dark, V.J., & Loftus, G.R. (1976). The role of rehearsal in long-term memory performance. *Journal of Verbal Learning and Verbal Behavior, 15*, 479-490. (pdf)

Loftus, G.R. (1976). A framework for a theory of picture memory. In J. Senders & R. Monty (Eds.). *Eye Movements and Psychological Processes*. Hillsdale, N.J.: Lawrence Erlbaum Associates. (pdf)

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Loftus, G.R. (1978). On interpretation of interactions. *Memory and Cognition, 6*, 312-319. (pdf)

Loftus, G.R. (1978). Comprehending compass directions. *Memory and Cognition, 6*, 416-422. (pdf)

Loftus, G.R. & Mackworth, N.H. (1978). Cognitive determinants of fixation location during picture viewing. *Journal of Experimental Psychology: Human Perception and Performance, 4*, 565-572. (.pdf)

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Massaro, D. & Loftus, G.R. (1996). Sensory storage: Icons and echoes. In E.L. Bjork and R.A. Bjork (eds.) *Handbook of Perception and Cognition, Vol. 10*. New York: Academic Press, pp. 68-101.

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Loftus, G.R. (2010). What can a perception-memory expert tell a jury? *Psychonomic Bulletin & Review*, 17, 143-148. (pdf)

Loftus, G.R. (2010). Processi Cognitive, testimonianza dell'esterto e teorie su eventi di pertinenza legale. *Sistemi Intelligenti a. XXII, n. 2, Agosto 2*. (pdf) (English Translation: Cognition, expert testimony, and theories of legally relevant events). (pdf)

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De Cesarei, A. &. Loftus, G.R. (2011). Global and local vision in natural scene identification. *Psychonomic Bulletin & Review DOI 10.3758/s13423-011-0133-6*. (.pdf)

Franz, V. &. Loftus, G.R. (2012). Standard errors and confidence intervals in withi-subject designs: Generalizing Loftus & Masson (1994) and avoiding biases of alternative accounts.*Psychonomic Bulletin & Review, DOI 10.3758/s13423-012-0230-1*. (pdf)

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Reinitz, M.T. &. Loftus, G.R. (2016). Conjunction faces alter confidence-accuracy relations for old faces. *Journal of Experimental Psychology: Learning, Memory & Cognition*.

De Cesarei, A., Loftus, G.R., Mastria, S., & Dodispoti, M. (2017). Understanding natural scenes: Contributions of image statistics. *Neuroscience & Biobehavioral Reviews* (in press).

De Cesarei, A., Marzocchi, M., & Loftus, G. R. (in press). VISTO: An Open-Source Device to Measure Exposure Time in Psychological Experiments. *MethodsX*.

Invited Addresses

1972

University of Oregon, Eugene, OR

New York University, New York, NY

Bell Telephone Laboratories, Murray Hill, NJ

State University of, New York, Oswego, NY
Brown University, Providence, RI
University of Pennsylvania, Philadelphia, PA

1974

National Academy of Sciences Specialists Meeting, Princeton, NJ

1975

University of California, Irvine, CA
University of Wisconsin, Madison, WI
Temple University, Philadelphia, PA
University of California, Los Angeles, CA
University of Toronto, Toronto, ON, Canada

1976

Simon Fraser University, Burnaby, BC, Canada
University of Oregon, Eugene, OR
Interdisciplinary Conference, Jackson Hole, WY
Advanced Projects Research Agency Conference on C3 Systems, Cambridge, MA
Advanced Projects Research Agency Conference on Cartography, San Francisco, CA

1977

University of California, San Diego, La Jolla, CA
University of Rochester, Rochester, NY
Simon Fraser University, Burnaby, BC, Canada
University of California, Irvine, CA

1978

Center for Advanced Studies in the Behavioral Sciences, Stanford, CA
University of Michigan, Ann Arbor, MI
Swarthmore College, Swathmore, PA
University of California, Berkeley, CA
NASA/Ames, Mountain View, CA

1980

University of Denver, Denver, CO

1981

University of Lethbridge, Lethbridge, Alberta, Canada
Stanford University, Stanford, CA
British Psychology Society, Plymouth, England
Craik Society, Cambridge University, Cambridge, England
Copenhagen University, Denmark
Sloan Conference on Reading, Amherst, Mass.
Yale University

1982

University of Utah
Max Planck Institute, Berlin, Germany
NASA/Ames, Mountain View

1983

University of California, Santa Cruz, CA
Max Planck Institute, Berlin, Germany

1984

Stanford University, Stanford, CA
University of Toronto, Toronto, CA
Society for Computers in Society (Presidential address), San Antonio, TX
Arizona Public Defender's Office, Tucson, AZ
California State College System, Courseware Conference, San Francisco, Ca
Concordia University, Montreal, Canada
Hebrew University, Jerusalem, Israel

1985

Western Psychological Association, San Francisco, CA
Williams College, Williamstown MA
U.S. Army Conference on C3 Systems, Fort Walton Beach, FL
University of Toronto, Toronto, Canada
Institute for Perception, Amsterdam, the Netherlands
Leiden University, Leiden, the Netherlands
University of North Carolina, Chapel Hill NC

1986

Brown University, Providence, RI
Duke University, Durham, NC
IBM Research Labs, Yorktown Heights, NY
John Hopkins University, Baltimore, MD
National Institute on Aging, Bethesda, MD
Northwest Courseware Conference, SeaTac, WA
Simon Fraser University, Burnaby, BC, Canada
SUNY, Stony Brook, Stony Brook, NY
University of Delaware, Newark DE
University of Maryland, College Park, MD

1987

Association of Federal Public Defenders, Seattle, WA
New York University, New York, NY
Society for the Visually Impaired

1988

University of Alberta, Edmonton, Alberta, Canada
Banff Conference on Cognitive Science, Banff, Alberta, Canada
University of Illinois, Champaign, IL
New York University, New York, NY

1989

New York University, New York, NY

1990

Amherst conference on eye movements, Amherst, MA
Ann Arbor conference on human/machine vision, Ann Arbor, MI
Boston University, Boston, MA
Leiden University, Leiden, the Netherlands
National Research Council meeting on vision, Irvine, CA
Stanford University, Stanford, CA

University of Padua, Italy

1991

National Center for Geographic Information and Analysis Conference on Visualization and Spatial Quality, Castine, Maine

Nuclear Regulatory Commission conference on systems for regulatory research, Livermore, CA

1992

Child Guidance Center, Tacoma, WA

Western Psychological Association, Portland, OR

Free University, Amsterdam, The Netherlands

Max Planck Institute, Berlin, Germany

Tucson Public Defender's Office, Tucson, AZ

Spokane WA Public Defender's Office, Spokane, WA

1993

Harvard University, Cambridge, MA

Smith-Kettlewell Institute, San Francisco, CA

University of California, Santa Barbara, CA

University of California, Santa Cruz, CA

University of Texas, Austin, TX

Washington Defender's Association, Winthrop WA

1994

American Psychological Association

Applied Psychology Unit, Cambridge, UK

Brown University, Providence, RI

Stanford University, Stanford, CA

University of St. Andrews, St. Andrews, Scotland

University of Toronto, Toronto, Canada

1995

American Psychological Society, New York, NY

Boston University, Boston, MA

Boston VA Medical Center, Boston, MA

Brown University, Providence, RI

Massachusetts Institute of Technology, Cambridge, MA

Society of Experimental Psychologists, Phoenix, AZ

Tufts University, Medford, MA

Wellesley College, Wellesley, MA

1996

Brandeis University, Waltham, MA

Dartmouth College (Kohler Memorial Lecturer), Hanover, NH

Indiana University, Bloomington, IN

Japanese Educational Psychology Society, Tokyo, Japan

National Institute of Bioscience and Human Technology, Tsukuba,Japan

Northeastern University, Boston, MA

Tsukuba University,. Tsukuba, Japan)

University of Massachusetts, Amherst, MA

Waseda University, Tokyo, Japan

1997

American Psychological Association, Chicago, IL
Birkbeck College, London, UK
Brandeis University, Waltham, MA
City University, London, UK
University of East London, London, UK

1998

American Psychological Association, San Francisco, CA
City of Chicago Corporation Counsel's Office, Chicago, IL
Military Prosecutors Conference, Everett Naval Base, Everett, WA
Princeton University, Princeton, NJ
Seattle Forensic Institute, Seattle, WA

1999

Cities conference, Rutgers University, New Brunswick, NJ

2000

Alaska Trial Lawyers Convention, Anchorage, AK
Arizona Trial Lawyers Convention, Long Beach CA
Microsoft Corporation, Redmond, WA

2001

Society of Counsel Representing Accused Persons, Seattle, WA)
University of Puget Sound, Tacoma, WA
National Science Foundation Conference on Augmented Cognition, Washington DC
Society of Counsel Representing Accused Persons (Kent, WA)
Public Defender's Office, Seattle, WA

2002

Society for the Quantitative Analysis of Behavior, Toronto (Invited Preeminent Tutorial)
Northwest Defenders Association, Seattle, WA
Inns of Court, Puget Sound Chapter, Tacoma WA

2003

Henry Art Gallery, Seattle, WA
University of Victoria, Victoria, BC, Canada

2004

University of Alberta, Edmonton, Alberta, Canada
Washington State Trial Lawyers Association, Seattle, WA

2005

Society for Applied Research in Memory and Cognition, Wellington, New Zealand
Honolulu Public Defender's Association, Honolulu HI
Western Psychological Association, Portland OR

2006

Santa Clara, San Mateo, San Francisco Public Defender Seminar, San Mateo, CA

2008

MIT Symposium on object recognition, Cambridge, MA
Giessen University, Giessen, Germany

2009

Society for Applied Research in Memory and Cognition, Kyoto, Japan
Università di Bologna, Bologna, Italy

2010

NOWCAM Conference, Bellingham, WA (Keynote speaker)
Cook County Public Defender's conference, Oakbrook, IL

2011

Washington Association of Criminal Defense Lawyers, Annual Conference, Chelan, WA
Society for Applied Research in Memory and Cognition, New York, NY

2012-2013

Inns of Court, Puget Sound Chapter, Seattle WA
Roosevelt University, Chicago, IL
University of Washington Edwards Lecture, Seattle, WA

2014

Syracuse University, Syracuse, NY
Kwantlen Polytechnic University, Vancouver, BC, Canada

2015

Contra Costa County Public Defender's Office, Martinez, CA
District of Hawaii Federal Courts Conference, Honolulu, HI

2016

Canadian Psychological Association, annual meeting, Victoria, BC, Canada

2017

National Seminar on Forensics Evidence and The Criminal Law, Seattle WA
Università di Bologna, Bologna, Italy

2018-2021

University of Melbourne, School of Psychological Science, Melbourne, Victoria, Australia
University of Melbourne, History and Philosophy of Science, Melbourne, Victoria, Australia
University of Sydney, School of Psychology, Sydney, NSW, Australia
Illinois Association of Criminal Defense Lawyers, Chicago, IL

Exhibit B

A. He was not 100 percent sure it was Marco.
Q. Nothing about Marco being a shooter?
A. No.
MS. GLENNON: I have nothing further.
THE COURT: Anything else?
MS. LOITERSTEIN: Nothing based on that.
THE COURT: Ms. Dupes, you may step down.
(Witness excused.)
THEE COURT: Defense, call your next witness.
MS. GLENNON: Judge, I would call Dr. Loftus.
(Witness duly sworn.)
THE COURT: You may have a seat. That microphone does not do anything. Ignore it. Please keep your voice up loud and clear so everyone can hear you.

DR. GEOFFREY LOFTUS,

called as a witness on behalf of the defendant, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY

MS. GLENNON:

Q. Dr. Loftus, would you please introduce yourself to the ladies and gentlemen.
A. My name is Geoffrey Loftus. My first name

is spelled G-e-o-f-f-r-e-y, last name L-o-f-t-u-s.

Q. And, Dr. Loftus, what do you do for a living?

A. I am a professor in the department of psychology at the University of Washington out in Seattle.

Q. How long have you been a professor in Seattle?

A. Since 1972, so a lot of years.

Q. What is your educational and professional background?

A. I got a Bachelor of Arts degree in experimental psychology from Brown University, a doctorate and Ph.D in experimental psychology from Stanford University, then I went to New York for a year of post-doctoral work at New York University, University of Washington as a faculty member in 1972.

And apart from a year in the mid '90s that I spent teaching at MIT, I pretty much been at the University of Washington ever since.

Q. Doctor, as a faculty member of the University of Washington, do you do research?

A. Yes, I do.

Q. And what is your general area of research?

A. So my main research area has to do with human perception. That's the study of how people get information from the world into their brain by their sense organs, ears, eyes and so on.

The associate study of human memory. That's the study of how information, once it's gotten into the brain, is stored there, transformed in various ways and then eventually used for any task that requires memory which is most things that we do.

I also have a secondary research interest that takes up maybe 20 percent of my time that has to do with applications of mathematics and statistics to science in general and to psychology in particular.

Q. Doctor, can you explain the difference between experimental psychology and/or clinical psychology?

A. Sure. As your question sort of suggests, the field of psychology is broadly divided into clinical psychology on the one hand and experimental psychology on the other.

So a clinical psychologist is probably, you

know, like most people's, I imagine, of a psychologist. A clinical psychologist is a practitioner, somebody who sees clients with the intent of dealing with some sort of psychological problem, fear of snakes, marital difficulties, whatever.

Experimental psychologists like me, on the other hand, isn't a practitioner. I never seen clients. I never will.

Instead, an experimental psychologist is fundamentally a scientist, somebody whose main jobs are to go out and do experiments, collect data, and develop theory in an effort to understand how normal people operate.

In my case, to understand how normal people get information from the world into their brains, store it there, and use it later on.

Q. Have you published research with respect to experimental psychology?

A. I have. I have authored and co-authored maybe eight books being somewhere around 100 book chapters in journal articles. Most of them have to do with my main research area of human perception memory. There are a bunch of others that I have

written that have to do with my minor research area of applications of mathematics and statistics.

Q. Dr. Loftus, do you also lecture and do other various things with respect to your expertise for your field?

A. Apart from teaching, I lecture all the time. I have been invited over the years maybe 150 times by various universities and other organizations to talk about the research that I have done and applications of it to various practical issues like eyewitness memory, for instance.

Q. Have you also, through your experience in experimental psychology, testified before in court?

A. Yes.

Q. Can you estimate for me the number of times you testified in court?

A. Maybe 400.

Q. When I say testified in court, were you qualified as an expert in each and every one of those instances?

A. Yes.

Q. You were qualified as an expert in what?

A. Human perception and memory.

Q. Have you always testified for the defense?

A. Well, my general practice is to work for whoever asks me to work for them and not work for people who don't. Over the years, I mostly in criminal cases, been called by defense attorneys. I have been called by the State four times; and three of those times, the cases settled before I had a chance to do anything about them.

The fourth case, which was a murder case, are in Anchorage Alaska. Last year I did wind up testifying on behalf of the State.

Q. And are you being paid for your time here today?

A. I am. I charge Cook County $250 an hour for any casework that I do, including legal casework like this.

Q. Have you ever testified in civil matters?

A. I have. Many fewer times civil matters seem to settle before trial; but, yes, I have testified in civil matters.

Q. Have you ever worked on behalf of police departments?

A. I have. I worked on behalf of police departments actually in criminal cases in New York City and in New Jersey and Las Vegas as well.

I have worked for prosecutors or offices that in one way or another defend police officers who were accused of various misdeeds. I have done that here in Cook County and also in Kane County where Seattle is.

MS. GLENNON: Judge, at this time I would seek to qualify Dr. Loftus as an expert in the field of experimental psychology.

THE COURT: State, any objection?

MR. CROWE: No.

THE COURT: Dr. Loftus will be received in the field of experimental psychology.

BY MS. GLENNON:

Q. Doctor, have you brought various notes and or a report with you today?

A. Yes.

Q. Would those aid you at all in your testimony?

A. I don't think so. Thanks.

Q. I have an easel set up. Was that at your request?

A. It was.

Q. Would you like to explain some of your testimony through a visual demonstration with the

jury?

A. Well, what I was planning to do with this easel, as I have discussed, is to provide for the jury sort of a general depiction of how memory works.

Would that be okay if I stepped down and did that, your Honor?

THE COURT: Well, if the defense lawyer asks a question and if the other side objects, I will.

MS. GLENNON: If the State has no objection, I will ask that Dr. Loftus be allowed to step down to the easel that I have set up for him.

THE COURT: State, any objection?

MR. CROWE: No.

THE COURT: You may position yourself where you could see the easel.

BY MS. GLENNON:

Q. Dr. Loftus, could you describe to the ladies and gentlemen how perception and memory work?

A. It's a bit complex. I could lecture on it for weeks. I am sure you don't want me to do that.

What I could do instead is to provide sort of a simple depiction of some of the main aspects of human perception and that I think are most relevant

to the legal issues you guys are dealing with here.

Q. Before you begin, you have actually reviewed police reports, interviews, and all sorts of documents with respect to Marco Lopez?

A. Yes, which provided me a general sense of what aspects of perception and memory are relevant here.

Q. Could you describe for us how memory works?

A. So what I will do is two things. The first is that I will intend to draw sort of a box and diagram a box and diagram providing a general idea of things that are relevant here and then to make it a little more comprehensible to the jury.

I make up a hypothetical example to illustrate what I have drawn.

MR. CROWE: Your Honor, I will object. I believe that the testimony in the form --

THE COURT: How we work here is a lawyer asks a question and the witness gives an answer. So if we could proceed on that basis, please.

BY MS. GLENNON:

Q. Doctor, what is an original event?

A. An original event is any event at issue that is experienced by a witness. It could be a

crime like the one that's at issue here. It could be a wedding, basketball game. It could be a car accident. It could be anything.

Q. What is an eventual memory for the event?

A. At the end of the line, any witness to this event has a memory for the event.

Q. Are events and memories of the event both forms of information?

A. Yes. So as you say, you could think of the event as being an information, lots and lots of information. The information takes on different forms. The visual information sound waves carry auditory information and so on, but it's all information.

Likewise, any eventual memory the witness has is also made up of information. It's information that's represented differently. It takes the form of neuro connections and electrical activity, but it's still information.

Q. What is different between reliable and unreliable information?

A. Well, in order to describe that, I have to talk a little bit more about how information is relevant to the original event, gets into memory, if

I could do that.

Q. Is eventual memory made up of two types of information?

A. Yes, it is.

Q. Could you describe what two types of information that is?

A. Sure. The first kind of information is based on what I will call conscious experience.

Q. What is conscious experience?

A. Conscious experience means just what everybody thinks it means. When you're experiencing something like everybody in this courtroom is experiencing, something now based on sensory data coming in through your sense organs, you form a conscious experience of what it is that's going on.

And based on this conscious experience, you could transfer some information from the conscious experience into memory.

Q. And what is pre-event information?

A. Pre-event information is information that people already have about the way the world works. Pre-information could consist of things like general knowledge about what happens in the world, how the

world normally works. It could consist of things like biases or expectations about how the world might work. All of these things could cause pre-event information.

Q. Can pre-event information affect memory?

A. Yes.

Q. How so?

A. So the way I have depicted things here, information is transferred from event to memory by a conscious experience, as I have just described it.

This root I am going to get to the answer in your question in a second. I have to provide some pre-information. I have depicted this in green as sort of a reminder --

MR. CROWE: Objection, narrative.

THE COURT: Sustained.

BY MS. GLENNON:

Q. When you're talking about event information becomes a memory, is there two kinds of information that make up that memory?

A. Yes. There is a conscious experience information that I have depicted in green which is usually correct information reflecting what actually happened in the original event what I have called

pre-event information.

However, bias can alter what your conscious experience is that results from the event. In other words, if you believe that an event you're experiencing is going to happen in a certain way, your perception, your conscious experience of what is happening, can be affected by pre-event information in the form of knowledge or expectations or whatever.

Q. Doctor, can you give an example of how pre-event information would affect memory?

A. Sure. I could do that by describing an experiment that was done a while back in the laboratory.

So in this experiment, people were very quickly shown pictures of playing cards, standard issue playing cards. So they will see of jack of diamonds, ace of spades and so forth and so on.

Their job is to report the color of the cards are that they see even though those cards are shown very quickly, maybe hundreds of a second. When you see jack of diamonds, it's red and so on.

However, in this experiment, the trick was that some of those cards were in the incorrect

color. So the ace of spades might be shown in red. The jack of diamonds might be shown in black every now and then one of those off color cards would show up.

Q. What did that do with respect to the persons that were the subject of this study?

A. So the result of that is that the subjects in this experiment did not see those off colored cards either as the color they actually were read.

Let's say in the case of a red ace of spades or the color that they thought should be black, in that case, red of ace of spades.

What they saw was sort of a blend reported seeing a sort of brownish. What that demonstrates is that their actual conscious experience was a mixture of the actual sensory data coming in a red ace of spades on the one hand and what they expected the color of this card to be, namely, black because it was ace of spades. So that is an example and there are others of how pre-event information can bias what you are.

Q. Is there something called post-event information that could also affect a person's memory?

A. Yes. Post-event information, as the term suggests, is information that comes along after the event itself is over that is one way or another relevant to the event.

Q. Can you give an example of a post-event piece of information that would affect memory?

A. Sure. I could do it by describing briefly an experiment back in the laboratory.

So in this experiment, subjects were shown a movie of a car accident, two cars colliding with one another. After the film was over, they were asked a lot of questions about this accident that they had just witnessed.

So as is often done in scientific experiments, the group of subjects who had seen the film were randomly divided into two groups. Those two groups were treated identically except for one phrase in one of the many questions they were asked.

So one of the groups was asked with respect to the speed of the cars, how fast were the cars going when they hit each other. The other group was treated identically except they were asked how fast were the cars going when they smashed into each other.

The first sequence of this difference between two groups is that people asked about speed using the word smashed gave a higher speed estimate. It's interesting. It tells you the fact about leading questions.

Q. So, for example, if a police officer asked leading questions of a witness as opposed to an open ended question, could that create a post-event information or post --

A. Right. It could certainly and does affect --

MR. CROWE: Objection.

THE COURT: Overruled.

THE WITNESS: -- the leading questions of this sort that I have just described certainly can affect the answer that a witness or a subject in the experiment will give; but I have not described what post-event information comes into play yet.

In this experiment that I have just described, there was a second case. A week later everybody came back to the laboratory and they were asked some additional questions about --

MR. CROWE: Objection, narrative.

THE COURT: Sustained.

BY MS. GLENNON:

Q. When you say they were all brought back, are you saying the two separate groups were brought back to the laboratory?

A. Yes.

Q. The ones that were asked the leading questions, the smash versus the ones that were not?

A. Yes.

Q. When all those witnesses came back into the lab, what, if anything, did you notice?

A. Well, they were asked additional questions.

Q. Such as?

A. The accident that they had seen. One of the questions, the key one was, did you see any broken glass?

Now, as it turns out, there hadn't been any broken glass in the original experiment. So the correct answer to this question would have been no; but the subjects who had originally been asked about speed using the verb smash, were considerably more likely to falsely report that there was broken glass than were subjects who were asked about speed using the word hit.

So the explanation is that way back at the beginning, the verb smashed acts as a source of post-event information. It was subtle. It was embedded within a question; but, nevertheless, it provided information to the people who heard it that this had been a violent accident in which two cars smashed together which then led them to add to their memory details that were consistent with a violent accident in which two cars smashed together, details like broken glass which is how that broken glass showed up --

MR. CROWE: Objection, narrative.

THE COURT: Sustained.

BY MS. GLENNON:

Q. Dr. Loftus, are there or have you seen in your clinical or your experimental laboratory examples of post and pre-event information tainting someone's memory of an event?

A. Sure. I have just given you two examples of it. Such examples have been in the scientific laboratory and they happen in real life.

Q. Is it possible, in your experience, for people under the right circumstances to confidently remember things that differ from an actual event?

A. Yes.

MR. CROWE: Objection, form.

THE COURT: That's overruled.

BY MS. GLENNON:

Q. How could a person confidently remember something that's different from reality?

A. This brings us back to post-event information, which I said a couple minutes ago, and it often is entered into the witness's memory to supplement the often small amount of conscious experience information that was there to begin with.

Q. Could that subsequently cause a witness to confidently misidentify the perpetrator of a crime?

A. Yes. Part of what post-event information is by definition is that --

MR. CROWE: Objection, narrative.

THE COURT: So the record should reflect that Dr. Loftus is back on the witness stand.

Counsel, are you done with the easel?

MS. GLENNON: Yes, Judge.

THE COURT: Are you going to mark that as an exhibit?

MS. GLENNON: I would like to. It would be Defense No. 22.

THE COURT: Why don't you re-ask your question.
BY MS. GLENNON:
Q. Is it a real life consequence that a witness could competently misidentify the perpetrator of a crime?
A. Yes.
Q. Based on the information you just gave to the jury about pre and post events affecting memory?
A. Yes. What's critical in terms of your answering your question is that post-event information is information that is of --
MR. CROWE: Objection, narrative.
THE COURT: Overruled.
THE WITNESS: Due to accuracy, most of that information could be true. It could also be false. So in a situation like this, the witness in my example has a memory that has an enormous amount of information in it about the event.
Based on all this information, the witness could make a very confident description about what they remember happening; but unbeknownst to the witness, this confident description is based on a memory that although details strong and reel seeming is a memory that is potentially false in important

respects because it is largely made up of post-event information whose accuracy is, as I said, dubious.

Q. Can you give examples of when memory tends to be inaccurate?

A. There are three circumstances under which somebody's memory, or at least their report of what happened, can be inaccurate. I could go through those one by one.

Q. What is the first one?

A. So the first set of circumstances has to do with what's going on at the time that the original event is taking place. There are often factors at play that diminish the amount of generally accurate green root conscious experiment information that a person could get into their memory.

Q. Is lighting?

A. Yes.

Q. Duration?

A. How long the event takes would be such a factor.

Q. What about a lack of attention on the part of a witness to a particular appearance?

A. That would also be relevant.

Q. Is there a kind of initial memory that can

change into, or morph into, an eventual memory that is inaccurate?

A. Given some of those factors and other that are at play, a witness can begin with a memory, an original memory that is hazy. It's filled with holes, and it is exactly this kind of memory that can eventually morph into the kind of memory I just described, that is very complete, very detailed, real seeming and confidence evoking and a memory that is potentially false. So that's the first set of circumstances.

Q. Is there also a second set of circumstances dealing with the retention interval that a person has when an event ends and when they're asked to recall about it?

A. Yes.

Q. Is that also a factor?

A. Yes.

Q. How so?

A. Two things that could happen. There's normal forgetting. So any generally green root conscious experience information originally in memory can decay away.

Q. Can you talk about a time frame for that?

A. Yes. Decay of information is a relatively slow process. It's generally about a year before all the well learned visual information in memory is forgotten.

Q. You're aware in this case that it was within 24 hours that the eyewitness made an identification?

A. Yes. The other thing that could go on during that interval, however, is that during that time, that the witness can supplement their original memory with potentially incorrect post-event information to the degree that that post-event information is false.

Then as the witness integrates it, their memory becomes more stronger, more detailed, more complete; but at the same time less accurate. So that's the second set of circumstances.

Q. I believe you talked about procedures or the process of gaining the information. For example, leading questions, the examiner's bias, those kinds of things.

Is there an impact that those leading questions and a biased interviewer that would affect the final --

A. Yes, there is. We already talked about that in conjunction with the car crash experiment that I described.

THE COURT: Ms. Glennon, is this number three?

MS. GLENNON: That was number three.

THE COURT: This is number three.

BY MS. GLENNON:

Q. The nature of the process?

A. So, right, the nature of the process used to extract information from the witness's memory can both, under some circumstances, bias the witness in terms of what they say happened.

Like if you ask how fast were the cars going when they smashed, and the bias in such procedures can also act as a source of post-event information as we saw the verb smash do in the experiment that I described a couple minutes ago.

Q. I can anticipate questions about proceeding acquaintance versus a stranger.

How does that impact a person's memory of an event if they're acquainted with the person they're asked to recall information about as opposed to the stranger?

A. So when you see a stranger, you, of course,

have to construct a memory of what the stranger looks like from scratch. When you see a person that you know or you believe you do, all you have to do to recognize them is match the appearance of the person who you're looking at with a pre-stored representation of what they looked like in long-term memory.

So that is an easier process. It's more efficient than constructing a memory from scratch of a stranger, but those two processes are processes that are subject to error.

Q. Just because an individual is attempting to recognize someone versus identify a stranger, is it your testimony that that doesn't make it any less accurate?

A. Well, what I am saying is that it is perfectly possible in most people have the experience of misrecognizing a stranger as somebody that you know only to discover very quickly that the person you have misrecognized is, in fact, a stranger and coming to the conclusion that you have made a mistake.

Q. But doesn't that scenario that you have just given the ladies and gentlemen deal more with

factors like distance, lighting, duration, all of those factors?

A. So misrecognizing a stranger is more likely to take place under the kind of circumstances that we've talked about over here. So if the lighting isn't good, if the time is short, if the witness is not paying attention to exactly what the person looks like and so on, those are the circumstances under which a witness could potentially misrecognize a stranger as being somebody they know.

Q. So with respect to the case of Marco Lopez, you were given witness information from Jose Angel Herrera, correct?

A. Yes.

Q. And through your review of the information that I provided you, did you learn whether or not Jose Angel Herrera knew Marco Lopez?

A. Yes, he did.

Q. What did you learn?

A. That he, in fact, knew him.

Q. Did you learn about any pre-event information with respect to this case, events that happened before the shooting on March 18th of 2014 shortly after midnight that may have impacted Jose

Angel Herrera's memory?

A. Yes.

Q. Can you tell the ladies and gentlemen what you learned?

A. Well, my understanding is that there were conversations in which the witness had either engaged in or had overheard that suggested that the defendant, Mr. Lopez, had it in for the --

MR. CROWE: Objection.

THE COURT: I suppose we need a side bar.

(Whereupon the followings proceedings were had in a side-bar conference):

THE COURT: What's the basis for the objection?

MR. CROWE: He's testifying as to -- he's making conclusions regarding evidence that isn't in evidence. He's testifying. He's making a conclusion about something that he has no direct knowledge of.

THE COURT: Well, that's what experts do.

What's your position?

MR. CROWE: It's not in evidence.

MS. GLENNON: I believe he was provided

information that there was a conversation that occurred between Marco Lopez and Jose Angel Herrera regarding whether Luis was a snitch. If so, then he was going to get something. That's the conversation they introduced in their case in chief as their motive in this matter. I am trying to ascertain from this witness if that could be a pre-event piece of information that could affect Jose Herrera.

THE COURT: Experts are regulated. They could rely on hearsay and things that are not admissible in evidence so long as it's the type of data that an expert in the field ordinarily relies upon.

So if you establish that foundation, I will allow it.

MS. LOITERSTEIN: The witness said he had it out for him.

THE COURT: If it's something that he relied upon and it's something that would affect his opinion, then he could testify to it. If it is something he did not rely upon, then it shouldn't be asked about. If it's asked about, you could cross-examine on it.

(Whereupon the following proceedings were held in open court:)

THE COURT: The objection is overruled.

Please ask your next question.

BY MS. GLENNON:

Q. Dr. Loftus, through your review of this case, were you aware that my client, Marco Lopez, had a conversation with Jose Angel Herrera about snitching?

A. Yes.

Q. Did that event occur prior to this murder?

A. That's my understanding, yes.

Q. Would you characterize that as one of those pre-event pieces of information that impacts a person's memory?

A. Yes.

Q. Specifically, Angel Herrera's memory?

A. Yes.

Q. And were you also provided information in this case with respect to where Angel Herrera was when he made his identification?

A. Yes.

Q. What did you learn about the place that he

was when he made this identification?

A. My understanding was that he was inside his apartment looking through a window out onto an area that was close to the entryway of the apartment building.

Q. Were you actually shown photographs of the building?

A. Yes.

Q. Doctor, I am showing you what I have marked as Defense No. 23 for identification.

Do you recognize what I am showing you in that photograph?

A. Yes.

Q. Is that the building where this homicide occurred?

A. That's my understanding, yes.

Q. Do you see the window that you're referring to when you said Angel Herrera looked out a window?

A. Yes. As you look at this photograph, the window is over to the left mostly out of the picture.

Q. Would you circle with my pen the area that you're referring to.

A. Where the window is?

Q. Yes.
A. (Indicating.)
THE COURT: Did you identify the exhibit?
MS. GLENNON: He did.
THE COURT: The number.
MS. GLENNON: Defendant's No. 23.
THE WITNESS: So the window in question is now what I am circling in black.
BY MS. GLENNON:
Q. In the center of the picture, would that be the front entrance of the building in question?
A. That's my understanding.
Q. When you made your observations of this photograph, with respect to Angel Herrera's ability to observe the front door, what did you notice?
A. Well, there were obstacles that would have prevented anybody on the inside of the apartment looking through the window in question from being able to see the front door.
Q. Could you give me an example of the obstacles you're referring to?
A. A brick wall that I assume to be pretty permanent. There were also some trash bags and a tree, as I recall.

Q. Were you provided any information with respect to the lighting either outside of 1948 North Green or in Jose Angel Herrera's apartment?

A. I was, but the information I got was a little bit ambiguous. My best understanding was that at some point that the light inside the apartment was turned on.

Q. What significance would that have or might that have?

A. Well, in terms of being able to perceive the answers of somebody outside?

Q. Yes.

A. It's a two-edge sword, and it depends partly on where the light is situated, what the light's illumination is, are we talking about 60 watt bulb or whatever but generally speaking there are two consequences.

The first sequence is good for being able to perceive. In other words, there is an additional source of light above and beyond what there was before that would illuminate the person outside that would provide the witness to some degree the wherewithal to be able to see what he looks like.

But when light goes through a window -- and my understanding, by the way -- there is not only a window but an additional piece of plastic.

Q. Were you shown photographs of a plastic covering over that sliding glass door that you circled in Defense Exhibit 23?

A. Yes. So the light was going through the window and a piece of plastic. So in order for the light inside the apartment to be useful for the witness inside to perceive the appearance of the person outside the light from the lamp, first of all, has to go through both the window and the plastic.

It has to bounce off the person's face let's say outside and then the light that bounces off the person's face, that is going to be the light relevant to being able to see what he looks like to the witness and has to make a return journey back to the plastic bag to the window into the witness's eyeball.

Q. Now, does the placement of that light inside the apartment matter for what you have just described?

A. Sure. Light from a source like a light

bulb falls off fairly quickly.

Q. How about a floor lamp by the door?

A. To the degree that the light is close to the window or the door that the witness is looking out at, it will be the closer. It will be to the relevant object.

Q. How about if it were closer to the front door of the apartment versus the sliding glass door that the witness is making his observations?

A. Further then it will be worse.

Q. Were you provided any information with respect to the lighting outside the apartment?

A. I was. I hadn't quite finished about the lighting inside.

Q. Go ahead.

A. So the light has to make this double journey. It has to go outside, bounce off the person outside, then come back. Each of the media that the light goes through, the glass and the plastic, allows light through. That's what it needs for something to be transparent.

Two other things happen. First of all --

MR. CROWE: Objection, narrative.

THE COURT: Overruled.

THE WITNESS: Absorb some of the light and also those media reflects light. So what this means, as the light passes through those two things, once on the way out and then again on the way back, the light will have gone through four different things which means it will have had four different chances to be absorbed by these things and lost.

Second, light reflects off those media. The light will reflect off both the door as it leaves the room going outside and then it will reflect off the glass and the plastic again on its way back.

The most important sequence of this reflex issue is that from the witness's perspective, what he'll see is partly what's outside being illuminated by the lamp. Partly he'll see a reflex off the window and off the plastic of what's inside.

So the witness will essentially wind up with sort of a double exposure. Actually, a triple exposure since there's plastic as well from reflexes coming from inside the apartment and also what is outside.

So the reflexes from the witness's perspective of off the glass of what's inside of the

apartment will interfere with his ability to perceive anything like the appearance of a person who's outside of the door.

Q. With respect to -- let me ask you this: How would lighting outside of the building impact this triple exposure that you just referred to?

A. It depends on where the light is. So if there is a light that is, let's say, affixed to the apartment building that is illuminating the face of the person outside, that will help for one thing. That light has to make a one way journey into the apartment.

Q. How about if there was a light post in addition to a light on the building?

A. This light post that you're talking about --

Q. Behind the squawk area.

A. Right. So in that case, that light will have the effect of illuminating the portion of the person outside who is away from the witness leaving whatever portion is facing the witness that would be for the witness to be able to perceive and memorize appearance in shadow.

And, in fact, the brighter the light is the more the witness would be light adapted, blinded, so to speak, by the light; and would essentially, if it were the only thing, that would cause the witness to see the person outside only in silhouette.

Q. Were you also given information with respect to the clothing of the person that Angel Herrera said he saw?

A. I believe, yes.

Q. Do you recall what that was?

A. My recollection was that the witness reported that he was wearing a hoody.

Q. Was the hoody up or down?

A. The hoody was up, as I recall.

Q. Would that have any impact with respect to what you were just describing as far as what shadows and illumination of the individual that Angel Herrera was perceiving?

A. First of all, the hoody itself would secure part of the answer of the person being looked at. Second, any part of the hoody that is flapping around would cause shadows from whatever light is outside.

Q. How does duration and/or attention impact

a person's ability to perceive an event?

A. So duration will come as no shock effect how much information a person is able to get from an event by upon just experience into their memory. So to the degree that the event lasts a longer time, the witness has a greater opportunity to pay attention to various aspects of whatever it is they're looking at, a person's appearance, let's say, and accurately memorize it.

Q. So if the duration is shorter, perhaps seconds, would that impact their ability to correctly make a memory that you just talked about?

A. Sure. But what is critical here in terms of assessing duration is not the total physical duration that an event takes but what is referred to as functional duration.

Q. What do you mean by functional duration?

A. Function signal duration presupposes that there is something important that is going on like who is this person, which means that the witness needs to spend some time if they will know it later on trying to perceive and memorize what the person looks like.

Functional duration refers to that period of time during which several things are simultaneously through that the person that the witness is looking at is in the witness's field of view, that there is sufficient light for the witness to be able to make out any of the details of the person's facial appearance, the time that the person is close enough to the witness to be able to accurately make out what he looks like, and the time that the witness is actively paying attention to what the person looks like.

It's only during that period that all those things are simultaneously true that the witness can use the time to perceive and memorize what the person looks like.

So the time that all those things are simultaneously true is what we refer to as function signal duration. So even if, as you say, an event takes a couple of seconds, the functional duration for memorizing a person's appearance could be as short as zero.

Q. Did you also learn from your review of this case, that Angel Herrera said initially the person was walking along the sidewalk and turned in his

direction and turned back and continued on the path the person was walking?

A. That's my recollection.

Q. How about with respect to movements in the pocket area or waistband area of the person that Angel Herrera said he saw?

A. Sorry. What were you asking me about?

Q. Did you learn through your review of this case that Angel Herrera had indicated to the police that he was watching the individual's hands near their pocket or waistband area?

A. I do recollect that he said that, yes.

Q. How would that impact the functional duration of that perception?

A. Well, to the degree that the witness is paying attention to that aspect of the person walking by, he's not paying attention to the persons's appearance. So that would subtract from whatever functional duration was available to the witness.

Q. How does expectations impact a person's ability to create a memory?

A. Well, we have already eluded to expectation over here when we talked about pre-event

information. So one common aspect of pre-event information is a person's expectations about how a particular event might unfold.

And as I indicated in my diagram over there, one of the effects of pre-event information in the form of expectations is that to some degree it could influence what a person's conscious experience is of what is going on.

Just as in the experiments I described, a person's expectations that the ace of spades is going to be black will influence his perception of an ace of spades that show it's actually red.

Q. So in the information you were provided with respect to Jose Angel Herrera and any expectation he might have with respect to Marco Lopez, what did you determine with the information you were provided?

A. This is the kind of information that could influence the witness to falsely believe that the witness he saw walking was the person he might reasonably expect to be there, mainly, the defendant as opposed to any stranger. It's a reasonable explanation as far as his sense organs are concerned of who it is that he's looking at.

Q. You also touched a little bit earlier on inferences.

How would Jose Angel Herrera's pre-event information he had with respect to a conversation with Marco Lopez cause him to maybe later inform that Marco was the person out there that night?

MR. CROWE: Objection.

THE COURT: Sustained.

BY MS. GLENNON:

Q. Through the course of your review of this file, I believe you testified earlier that you learned of a conversation between Marco Lopez and the eyewitness Angel Herrera, correct?

A. Yes.

Q. I believe you characterized that as some of pre-event information you're referring to that could create those false memories?

A. Yes.

Q. Is there some sort of inferences that could be drawn from that pre-event information on the part of Angel Herrera?

MR. CROWE: Objection.

THE COURT: Sustained. I don't think he's testified about inferences yet.

BY MS. GLENNON:

Q. What does an inference have in perception and memory?

A. So an inference is a form of post-event information. It's self-generated post-event information.

Q. Can you give me an example?

A. I could give you an example by describing briefly an experiment from a laboratory. So there have been lots of experiments showing inferences.

There this one experiment that I will use as an example. Subjects in the experiments saw a slide show. In this slide show, there were many of them. I will use an example, a slide show that depicted a pretty boring event, namely, a woman walking up and down the aisles of a supermarket doing her shopping.

So there were a bunch of slides depicting the sequence of events. That was phase one of the experiments. There was also a phase two.

In phase two, subjects were shown a whole bunch of slides, some of which were the ones that they saw in phase one and others were pictures from the supermarket; but the subjects hadn't seen in

phase one. The subjects were asked to distinguish which pictures they had seen before versus which pictures they hadn't seen before.

Q. Did all of the individuals view that same thing, two separate clips, for lack of a better word?

A. Phase One was the study phase and phase two.

Q. What did you see as a result of the second slide show? Or

A. I have to describe the critical aspect of the test phase which was then. In study phase, there were two successive slides that were critical.

The first slide in this example showed the woman, the shopper contemplating a pile of oranges neatly stacked, piles of oranges.

The very next slide showed a woman looking very embarrassed. The oranges were scattered all over the floor. So that's what the subjects in the experiment actually saw in the test phase, that there was a slide that showed the woman picking an orange from the bottom of the pile; and it turned out that subjects were very sure that they had seen that exact slide before in the test phase.

So the explanation for this finding is that when the subject saw the two successive slides in the study phase, the oranges neatly stacked in the first slide, next slide, oranges scattered all over the floor. The subjects made an inference that what had happened is that the woman picked an orange from the bottom of the pile and apparently stored that inference as if it were true as part of their memory which is why in the test phase they were so sure that they had seen that very slide.

So, in other words, the inference they made --

MR. CROWE: Objection, narrative.

THE COURT: Sustained.

BY MS. GLENNON:

Q. Doctor, was there an inference from slide one to slide two based on a slide that they had actually seen or was it based on something else?

A. Well, based on those two slides, the witnesses evidently made the inference that the woman had picked an orange from the bottom of the pile. It explained what happened in the two successive slides that they saw and stored that inference in part of their memory.

Q. Even though they hadn't actually seen that occur?

A. Yes.

Q. How does that relate to this case?

A. So earlier I described, in answer to your questions, how pre-event information could affect the witness's conscious experience of who he was looking at in accord with his expectations of who it might be.

Even if that hadn't happened or in addition to that happening, the witness may make the inference after the fact based on the various pre-event information that the person he saw was the defendant. It sort of makes sense. It's just post-event information rather than a false memory that is formed by a pre-event information.

In either event, he would be in a position to use his pre-existing knowledge of what the defendant looked like in order to reconstruct his memory of the person he saw walking by the door such that his eventual memory of the person he saw walking by the door came to resemble the defendant, the person he thought likely would have been more than had been warranted by the physical data that

was available to him at the time the event was unfolding, the lack of light, lack of time, so on.

Q. Now, Doctor, we talked a little bit about competency and accuracy of a witness such as Angel Herrera expresses high confidence in some memory.

Should we use that confidence as some evidence that their memory is accurate?

MR. CROWE: Objection.

THE COURT: Sustained.

BY MS. GLENNON:

Q. Is there a correlation between a high confidence in memory and accuracy?

MR. CROWE: Objection.

THE COURT: That will be allowed.

THE WITNESS: The correlation between confidence and accuracy, in other words, the general idea that a high confident witness is more accurate than a low confident witness has been investigated in a multitude of study. So for the last -- over the last 50 or 100 years.

Q. What do those study shown?

A. Those studies have shown -- my answer will be a little complicated. So you will have to bear with me. So the answer is, it depends.

If a person gives a highly confident account of their memory of something they experienced, in order to determine whether this high confidence is associated with high accuracy or reflects high accuracy, you have to go back and look at the circumstances that led up to that confident report on the witness's part.

If you go back and you discover that the circumstances for forming the original memory were poor, not enough light, not enough time, attention not on what should be relevant and if there is some source of potentially false either pre-event information or post-event information, under those circumstances, contrary to sort of intuition or common sense, high confidence does not necessarily apply to accuracy.

If on the other hand, you go back and discover that the circumstances for forming the originally memory require were good, any attention appropriately directed and so on and there is not any potentially falsifying either pre-event information or post-event information, if that is true, then, again, just as a your common sense or intuition would lead you to believe, there is a

correlation between confidence an accuracy.

If that is the way that the things unfolded under those circumstances, a person who is highly confident is more likely to be --

MR. CROWE: Objection, narrative.

THE COURT: Sustained.

BY MS. GLENNON:

Q. Doctor, you have already talked about pre- and post-event information specific to Angel Herrera the witness in this case, correct?

A. Yes.

Q. And because he had that pre- and post-event information provided to him, how would that impact his confidence or proclamation of confidence?

MR. CROWE: Objection.

CTHE COURT: Sustained.

BY MS. GLENNON:

Q. You testified that pre- and post-event information was provided in this case, correct?

A. My understanding was that it was available, yes.

Q. And would that impact the confidence and accuracy of that witness or could it --

MR. CROWE: Objection.

THE COURT: That will be allowed.

THE WITNESS: Yes. It could certainly impact the confidence that the witness expresses. As for the accuracy, I can't really say. All I could say is that irrespective of the accuracy, the kind of pre- and post-event information that you have described would have the effects of increasing the witness's confidence that the person that he saw was the defendant.

BY MS. GLENNON:

Q. Even if those memories were false memories?

MR. CROWE: Objection.

THE COURT: Sustained.

BY MS. GLENNON:

Q. Based on the information that you have with respect to Angel Herrera, a witness in this case and his expressions of confidence, must we assume that he's lying?

MR. CROWE: Objection.

THE COURT: Sustained.

BY MS. GLENNON:

Q. Suppose that a witness testifies under oath to an identification and they falsely identify someone --

MR. CROWE: Objection.

THE COURT: Sustained.

BY MS. GLENNON:

Q. In your opinion, could Angel Herrera be mistaken in his identity?

MR. CROWE: Objection.

THE COURT: Sustained.

BY MS. GLENNON:

Q. Is it possible for a person to have a false memory that seems very real to them?

MR. CROWE: Objection.

THE COURT: That's overruled.

THE WITNESS: Yes, yes, and I have already described the circumstances under which that would -- that there are circumstances under which the ability to form --

MR. CROWE: Objection, narrative.

THE COURT: Sustained.

MS. GLENNON: No. I have nothing further.

THE COURT: State, you may cross-examine.

CROSS EXAMINATION

BY

MR. CROWE:

Q. Now, Doctor, you are not a neurologist,

correct?

A. Correct.

Q. And you are not an opthalmologist, are you?

A. No.

Q. Opthalmologists study eyes?

A. I study eyes, but I am not a an opthalmologist.

Q. You're not a medical doctor at all, correct?

A. That's correct.

Q. You don't see any patients?

A. That's correct.

Q. And you're not a physicist?

A. Well, I know a lot about physics.

Q. You don't have a degree in physics?

A. That's correct.

Q. You're not an engineer?

A. Correct.

Q. And you have no knowledge of who committed the murder of Luis and Segundo Reynoso?

A. That's correct.

Q. It is entirely possible that Marco Lopez shot two people, correct?

A. Sure.

Q. Let's talk about the conscious experience. That's one of those green boxes up there, right?
A. Yes.
Q. And that's what you experience with your senses during an event, correct?
A. Yes.
Q. That's what you see and feel during the event, correct?
A. Correct.
Q. It's hearing a gunshot, correct?
A. Yes.
Q. It's hearing a person sneak down creaky front steps, correct?
A. True.
Q. It's hearing a front door open right next to you, correct?
A. That would be an example of conscious experience, yes.
Q. It would also be seeing a man walk out of that front door right in front of you?
A. Yes.
Q. And seeing a man you know turn and face directly at you from eight to ten feet away, correct?

A. Seeing a person you believe you know turning and facing you or at least having a memory of that.

Q. It would be making a recognition of a person you see practically every day, correct?

A. What would be?

Q. Him turning from eight feet away to face you.

A. I am not understanding. What is your question exactly?

Q. Now, with regard to those perceptions, of course you have interviewed Jose Angel Herrera about his perceptions of what he saw that night?

A. I never interviewed anybody in this case. I never interviewed anybody in any case I participated in, including this one.

Q. You never talked to him about what his perception of those events was, correct?

A. I never interviewed anybody in this case about anything.

Q. You never talked to him about how he viewed the event, correct?

A. I never interviewed anybody in this case about anything.

Q. Let's talk a little bit about post-event information.

Now, Jose Angel Herrera never viewed any movies in this case, right?

A. Not to my knowledge.

Q. Never saw, was never introduced the word smashed or the word shot or anything like that, correct?

A. Correct.

Q. And it's also true that the very first person that he told the police immediately about this that he spoke to an officer by the name of Craig Stout immediately on the scene, correct?

MS. GLENNON: Objection.

THE WITNESS: Correct.

THE COURT: Please phrase it in terms of what he relied upon and if that is something he would typically rely upon in this case.

BY MR. CROWE:

Q. You have a copy of the police reports, correct?

A. Yes.

Q. You are aware that Mr. Herrera immediately reported his identification of Marco Lopez, correct?

MS. GLENNON: Objection to the form of the question.

THE COURT: Overruled.

THE WITNESS: Yes.

BY MR. CROWE:

Q. And that the first person that he identified Marco Lopez to was a police officer by the name of Craig Stout, correct?

A. Well, I don't remember his name, but I will take your word for it.

Q. That was within minutes of his making his observation of Mr. Lopez?

MS. GLENNON: Objection.

THE COURT: Please conform your question to what this witness took into account in formulating his opinions.

BY MR. CROWE:

Q. And based upon your examination of the records, you know that Marco -- that Jose Herrera wasn't asked any questions by any police officers prior to making his disclosure to Officer Stout, correct?

A. Yes.

Q. So no police officer interviewed before he

made his disclosure, correct?

A. Correct.

MS. GLENNON: Objection.

THE COURT: Sustained.

BY MR. CROWE:

Q. You're aware that he made his identification immediately, correct?

A. Yes.

Q. There were no identification procedures intervening between his observation and his identification to the police, correct?

MS. GLENNON: Objection to the form of the question.

THE COURT: Sustained.

BY MR. CROWE:

Q. Mr. Herrera told the police he saw Marco immediately, correct?

A. Correct.

Q. Of course you talked to Officer Stout to make sure you had the accurate circumstances of his initial disclosure, correct?

A. As I mentioned earlier several times, I haven't interviewed or talked to anybody in this case.

Q. Of course you talked to Detective McCarthy?
MS. GLENNON: Objection.
THE COURT: Sustained. He said he did not interview anybody. We will not go through the whole list. He did not interview anybody. That's his testimony.
BY MR. CROWE:
Q. All you did was review some notes that were provided to you by the defense, correct?
A. Correct.
Q. Let's talk about pre-event information.
Nobody showed Jose Herrera any cards, correct?
A. Not to my knowledge, no.
Q. Marco Lopez isn't the ace of spades, is he?
MS. GLENNON: Objection.
THE COURT: Sustained. Please conform to what is relevant with this witness.
BY MR. CROWE:
Q. Pre-event information, that's stuff you know about what is going on before you perceive the event, correct?
A. Yes.
Q. If you don't see the event, you can't have

any pre-event information, correct?

A. Pre-event information could come from numerous sources. It could come from hearing, seeing, could come from reading. It does not have to require seeing.

Q. Now, in this case, the information that you provided related to Jose Herrera is that he heard a shot, correct?

A. Yes.

Q. That he saw a Marco Lopez coming out of the building shortly thereafter, correct?

A. Yes.

Q. You have no information about what he knew, about what happened upstairs, do you? There's no information about that whatsoever, correct?

MS. GLENNON: Objection.

THE COURT: Sustained.

BY MR. CROWE:

Q. You do not know what Jose Herrera knew about what happened upstairs when he observed Marco Lopez?

MS. GLENNON: Objection.

THE COURT: Sustained.

BY MR. CROWE:

Q. Let's talk a little bit about lack of attention or functional duration.

You would agree that when you hear a shot, your attention is drawn to determining its source, correct?

A. Yes.

Q. When you hear a person sneaking down the creaky stairs, your attention is drawn to that person, correct?

A. One would imagine, yes.

Q. When he walks right in front of you, your attention is focussed on him, correct?

A. To some degree.

Q. When he turns and looks right at you from eight to ten feet away, your attention is focussed, correct?

A. Sure, possibly, or you might be focussed on where the gun was and whether it's present now or whether this person might be dangerous because he's carrying a gun or any number of other things.

Q. In this case, there is no question of a gun being pointed at anyone, correct?

A. I understand that, yes.

Q. So Jose Herrera wasn't focussed on any gun, was he?

A. No. What I said in answering your question was that he might have if he were a normal person trying to figure out, given he had just heard a gunshot, whether his life was in danger because the person he was seeing was carrying the gun, even if there were no gun visible.

Q. Now, it is easier to identify someone you know than a stranger, correct?

A. Yes.

Q. And as before, you're not a physicist or engineer?

MS. GLENNON:

Q. Objection?

THE COURT: Sustained.

BY MR. CROWE:

Q. You're not a lighting designer, are you?

MS. GLENNON: Objection.

THE COURT: Sustained.

BY MR. CROWE:

Q. You never went to this particular scene, did you? You never went to 1948 on Green Lane in Palatine, correct?

A. Correct.
Q. And you only reviewed the photographs provided to you by the defense, correct?
A. Yes.
Q. The reports and notes provided by the defense, correct?
A. The reports? What are you referring to by notes?
Q. Investigator notes.
A. Yes.
Q. You don't know exactly what lights there were in that parking lot on March 19, 2014, do you?
A. Correct.
Q. You don't know what light bulbs were used?
A. Correct.
Q. You don't know if they're candle power?
A. Correct.
Q. You never went into Jose's apartment, correct?
A. I did not.
Q. You never saw where Jose was standing, correct?
MS. GLENNON: Objection.
THE COURT: Sustained.

BY MR. CROWE:

Q. You don't know what view he had, correct?

A. You mean apart from knowing the configuration of his apartment and outside?

Q. You don't know where he was standing?

MS. GLENNON: Objection

THE COURT: Sustained.

BY MR. CROWE:

Q. You don't know -- you never inspected the glass on the door, did you?

A. Correct.

Q. You don't know what the thickness is?

A. Correct.

Q. Or its clarity?

A. Correct.

Q. You never saw what the lighting was like inside, correct?

A. Correct.

Q. You don't know where the lamps were placed or which ones were on or off, do you?

A. Correct.

Q. You never interviewed any of the other witnesses in this case either?

MS. GLENNON: Objection; asked and answered.

THE COURT: Sustained.

BY MR. CROWE:

Q. How much are you getting paid?

A. I charge $250 an hour for casework that I do here in Cook County.

Q. How many hours have you billed on this case?

A. Well, let's see. You mean for this trip or for the whole case?

Q. For the whole thing. How much are you getting paid?

A. It will probably be around 40 hours, $10,000.

Q. It's still possible that Jose Angel Herrera was 100 percent accurate when he identified Marco Lopez as the person who emerged from the front door of that building?

A. It's either accurate or not, so he could be accurate.

Q. Now, as much as we made about the conversation that Jose had with the defendant, Marco Lopez, isn't it true that that conversation was like a month before this occurrence?

A. Yes.

MS. GLENNON: Objection.

THE COURT: If he knows.

THE WITNESS: To be honest, I don't remember when the conversation was relative to the shooting.

BY MR. CROWE:

Q. You don't know the timing of that conversation?

A. I don't remember it, right.

MR. CROWE: I have nothing further.

THE COURT: Redirect.

REDIRECT EXAMINATION

BY

MS. GLENNON:

Q. Doctor, whose job is it to determine whether Jose was accurate or inaccurate?

A. The jury.

MR. CROWE: Objection.

THE COURT: Sustained.

BY MS. GLENNON:

Q. It's entirely possible that Jose Angel Herrera misidentified Marco Lopez?

MR. CROWE: Objection.

THE COURT: You opened the door. That's allowed.

THE WITNESS: Yes, it is.
BY MS. GLENNON:
Q. It's entirely possible that Marco Lopez did not shoot the two people in that building; is that correct?
MR. CROWE: Objection.
THE COURT: Overruled.
THE WITNESS: That's correct.
BY MS. GLENNON:
Q. Now, as an expert, do you typically go to a scene and interview witnesses?
A. No.
MR. CROWE: Objection.
THE COURT: Overruled.
BY MS. GLENNON:
Q. You were provided photographs, right?
A. Yes.
Q. The photograph I showed you today was a police photograph, right?
A. Yes.
Q. Taken by the police in this case?
A. Right.
Q. You were also provided with witness statements with respect to hearing gunshots and what

was seen right afterwards, correct?

A. Yes.

Q. You are aware that there is conflicting information about the front stairs and back stairs, correct?

A. Yes.

Q. Angel said the front stairs?

A. Yes. That's my understanding.

Q. And there are also conflicting accounts about the lighting, correct?

A. That was also my understanding, yes.

Q. It's not your job to determine which one of those people is telling the truth, is it?

A. Correct.

Q. It's the jury's job to determine that?

A. Yes.

Q. You're aware through your review of the reports that Jose Angel Herrera was spoken to in the police station immediately following everything that occurred out at 1948 North Green?

A. Yes.

Q. He was interviewed for hours by police?

A. Yes.

Q. Doctor, just so I am clear, the reports and

the witness interviews that I gave you were documents tendered to me from the police, correct?

A. Yes.

Q. Police reports?

A. That was my understanding.

Q. Police interviews?

A. Correct.

MS. GLENNON: I have nothing further.

THE COURT: Any recross?

MR. CROWE: No.

THE COURT: Ladies and gentlemen, we will take our lunch break. We will reconvene at 1:30. Please do not discuss this case amongst yourselves.

(Whereupon the jury left the courtroom and the following proceedings were had:) (WHICH WERE ALL THE PROCEEDINGS HAD)

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STATE OF ILLINOIS)
) SS:
COUNTY OF C O O K)

IN THE CIRCUIT COURT OF COOK COUNTY, ILLINOIS
MUNICIPAL DEPARTMENT-THIRD MUNICIPAL DISTRICT

I, JENNIFER ZANICHELLI, an Official Court Reporter in the Circuit Court of Cook County, County Department, Third Municipal District, do hereby certify that I reported in shorthand the proceedings had at the hearing of the aforementioned cause; that I thereafter caused the foregoing to be transcribed, which I hereby certify to be a true and accurate transcript taken to the best of my ability of the proceedings had before the Honorable Marc Martin, Judge of said Court.

Jennifer Zanichelli
Official Court Reporter
CSR# 084-003129

Dated this 7th day of September 2016